

=> d his

(FILE 'HOME' ENTERED AT 10:09:55 ON 04 AUG 2008)  
FILE 'CA' ENTERED AT 10:10:12 ON 04 AUG 2008

L1 18618 S (MICROWAVE OR TERAHERTZ OR THZ OR TERAHZ OR THERTZ OR (TERA OR T)  
(W) (HERTZ OR HZ) OR SUBMILLIMETER OR SUB MILLIMETER OR SUBMM OR  
SUB MM OR MICRON OR MICROMETER) (5A) (SPECTRO? OR ANALY!ER OR  
ABSOR?)

L2 305 S L1 AND (VACUUM OR REDUC?(1A)PRESSUR? OR EVACUAT?)

L3 35 S L1 AND((COLD OR CRYOGENIC) (3A) (TRAP? OR FINGER OR CAPTUR?) OR  
CRYOTRAP?)

L4 280 S L1 AND SAMPLE(2A) PREPAR?

L5 3756 S L1 AND(GAS? OR VAPOR? OR VOLATIL? OR SEMIVOLATIL?)

L6 568 S L5 AND(TRAP? OR LEAK? OR INTERFAC? OR CARRIER OR CONTAMIN? OR  
IMPUR? OR PRECONCEN? OR PRE CONCEN?)

L7 48 S L2,L4 AND L6

L8 21 S L2,L4 NOT L3,L7 AND L5 AND (LOW TEMPERATURE OR FOURIER OR  
MODULATION)

L9 99 S L3,L7-8

L10 82 S L9 AND PY<2003

L11 0 S L9 NOT L10 AND PATENT/DT

=> d bib,ab 110 1-82

L10 ANSWER 24 OF 82 CA COPYRIGHT 2008 ACS on STN  
AN 129:325485 CA  
OREF 129:66197a,66200a  
TI Portable Fourier transform microwave spectrometer with cryogenic  
receiver for trace gas analysis  
IN Suenram, Richard D.; Lovas, Francis J.; Grabow, Jens U.; Harmony, Marlin  
D.; Leonov, Igor; Zuban, Andre  
PA The United States of America as Represented by the Secretary of  
Commerce, USA  
SO U.S., 16 pp.  
PI US 5831439 A 19981103 US 1997-802517 19970220  
PRAI US 1997-802517 19970220  
AB A highly compact, portable, pulsed-mol.-beam Fabry-Perot cavity Fourier  
transform microwave spectrometer which incorporates ultra-fine Fabry-  
Perot mirror surface finishes was developed for trace gas anal. The  
mirrors, having a surface finish of less than or equal to 0.25  $\mu$  root-  
mean-square, are coated with nickel and then with either gold or silver.  
In a further embodiment, one or more fixed-tuned Fabry-Perot cavities  
are incorporated within a single vacuum chamber to monitor one or more  
chem. species of interest.

L10 ANSWER 26 OF 82 CA COPYRIGHT 2008 ACS on STN  
AN 129:256082 CA  
OREF 129:52051a,52054a  
TI Purge-and-Trap Isothermal Multicapillary Gas Chromatographic Sample  
Introduction Accessory for Speciation of Mercury by Microwave-Induced  
Plasma Atomic Emission Spectrometry  
AU Pereiro, Isaac Rodriguez; Wasik, Andrzej; Lobinski, Ryszard  
CS CNRS, Pau, F-64000, Fr.

SO Analytical Chemistry (1998), 70(19), 4063-4069  
AB A compact device based on purge-and-trap multicapillary gas chromatog. was developed for sensitive species-selective anal. of methylmercury and Hg<sup>2+</sup> by at. spectrometry. The operating mode includes in situ conversion of the analyte species to MeEtHg and HgEt<sub>2</sub> and cryotrapping of the derivs. formed in a 0.53-mm-i.d. capillary, followed by their flash (<30 s) isothermal low-temp. sepn. on a minimulticapillary (22 cm) column. The very low detection limits obtained (0.01 pg mL<sup>-1</sup> of Hg for methylmercury) are due to the narrow injection band and reduced peak broadening in a bundle of 0.038-mm capillaries at high flow rates (>60 mL min<sup>-1</sup>) compatible with an MIP AES detector (no diln. with a makeup gas is required). Developments regarding each of the steps of the anal. procedure and effects of operational variables (sample vol., purge flow, trap temp., sepn. conditions) are discussed. The device allows speciation of MeHg<sup>+</sup> and Hg<sup>2+</sup> down to 5 pg g<sup>-1</sup> in urine and, after a rapid microwave-assisted hydrolysis, down to 0.1 ng g<sup>-1</sup> in solid biol. samples with a throughput of 6 samples/h. The anal. protocols developed were validated by the anal. of DORM-1 (dogfish muscle), TORT-1 (lobster hepatopancreas), and Seronorm urine certified ref. materials.

L10 ANSWER 28 OF 82 CA COPYRIGHT 2008 ACS on STN

AN 128:106105 CA

OREF 128:20711a,20714a

TI Online cryogenic trapping with microwave heating for the determination and speciation of arsenic by flow injection/hydride generation/atomic absorption spectrometry

AU Burguera, J. L.; Burguera, M.; Rivas, C.; Carrero, P.

CS Venezuelan Andean Institute for Chemical Research (IVAIQUIM), Faculty of Sciences, University of Los Andes, Merida, Venez.

SO Talanta (1998), 45(3), 531-542

AB An online flow injection-hydride generation/at. absorption spectrometry method was developed for the preconcn. and selective detn. of inorg. As (As(III) and As(V)) and its methylated species. The sepn. of the As species was performed by an automated pH-selective arsines generation technique, using Na tetraborate(III) as reductant. Each arsine was cryogenically trapped in a PTFE coil, knotted and sealed inside another wider diam. tube, through which liq. N was suctioned by neg. pressure. Then, based on their different b.ps., the arsine species were selectively liberated using a heating cycle of microwave radiation, followed by at. absorption detection. A sample soln. aliquot mixed with 1% citric acid was used for the detn. of As(III) alone, while a 2nd sample aliquot mixed with 2 mol/L nitric acid was used for the quant. detn. of total inorg. As, monomethylarsonic acid and dimethylarsinic acid. Based on 10 mL sample, the detection limits are 20-60 ng As/L, which are sufficiently low to detect the arsines-forming species in natural waters. These values are neg. affected by the reagents purity and background noise due to flame flickering, but the sensitivity can substantially be improved by increasing sample size or running several consecutive reactions.

L10 ANSWER 35 OF 82 CA COPYRIGHT 2008 ACS on STN

AN 124:241462 CA

OREF 124:44557a,44560a

TI Integrated sample preparation and speciation analysis for the simultaneous determination of methylated species of tin, lead and mercury in water by purge-and-trap injection-capillary gas chromatography-atomic emission spectrometry  
AU Ceulemans, Michiel; Adams, Freddy C.  
CS Dep. Chem., Univ. Antwerp, Antwerpen, B-2610, Belg.  
SO Journal of Analytical Atomic Spectrometry (1996), 11(3), 201-6  
AB A sensitive and interference-free automated method for the simultaneous speciation anal. of methylated species of mercury, tin and lead, and also inorg. mercury in water, using purge-and-trap injection-gas chromatog.-at. emission spectrometry, was developed. The ionic species are volatilized from the sample after ethylation, using sodium tetraethylborate, in acetate buffer medium of pH 5 and preconcd. on a capillary cryogenic trap. Desorption is effected by linear heating of the trap, followed by sepn. of the analytes by capillary gas chromatog. and selective simultaneous detection by microwave-induced plasma at. emission spectrometry. Detection limits of 0.15, 0.20 and 0.60 ng L<sup>-1</sup> for methylated tin, lead and mercury species, resp., and 2 ng L<sup>-1</sup> for inorg. mercury can be obtained, from a 10 mL sample vol. Examples of results for the anal. of river- and soil run-off water samples are given.

L10 ANSWER 40 OF 82 CA COPYRIGHT 2008 ACS on STN  
AN 121:314912 CA  
OREF 121:57373a,57376a  
TI Interferences in ultratrace speciation of organolead and organotin by gas chromatography with atomic spectrometric detection  
AU Szpunar-Lobinska, Joanna; Ceulemans, Michiel; Dirkx, Wilfried; Witte, Claudia; Lobinski, Ryszard; Adams, Freddy C.  
CS Dep. Chem., Univ. Antwerp, Antwerpen, B-2610, Belg.  
SO Mikrochimica Acta (1994), 113(3-6), 287-98  
AB Interferences in trace and ultratrace speciation anal. of organotin and organolead compds. in various samples by gas chromatog. coupled with at. absorption spectrometry (AAS) and/or microwave induced plasma at. emission spectrometry (MIP AES) are studied. Particular attention is given to the effects of matrix coextractives and reagents impurities introduced during sample prepn. Their influence on the detection limits is discussed in terms of baseline noise level, blank value, formation of artifacts and signal suppression. Loss of column resoln. during the anal. of some matrixes is obsd.

L10 ANSWER 51 OF 82 CA COPYRIGHT 2008 ACS on STN  
AN 115:269638 CA  
OREF 115:45553a,45556a  
TI Method and device for analysis of gaseous media by microwaves  
IN Dreizler, Helmut; Stahl, Wolfgang; Andresen, Uwe; Keussen, Christof  
PA Germany  
SO Ger. Offen., 6 pp.  
PI DE 3929079 A1 19910321 DE 1989-3929079 19890901  
US 5124653 A 19920623 US 1990-573781 19900828  
PRAI DE 1989-3929079 A 19890901  
AB This method and device are described, esp. for detg. a gas in a gas

mixt. by microwave spectroscopy, where the microwave radiation in a pulsed form is excited in a resonator tuned to various frequencies, which is in an evacuated container. The sample gas mixt. is introduced, with air as a carrier gas, into the container as a pulsed mol. beam. This mixt. condition, formed by the microwave pulse, produces an emission which, during the process between the incident microwave pulses, is tuned out from the resonator in a detection unit. The anal. signal is digitized and evaluated with respect to the mixt. at frequencies in a range, esp. within 50 MHz, where a Fourier anal. can be performed.

L10 ANSWER 64 OF 82 CA COPYRIGHT 2008 ACS on STN  
AN 103:203451 CA  
OREF 103:32665a,32668a  
TI Submillimeter wave Fourier transform spectrometer  
AU Zhang, Guangzhao; Lu, Hongze; Xie, Xiangchang; Chen, Weidong; Zhao, Jinfu  
CS Electron. Dep., Zhongshan Univ., Canton, Peop. Rep. China  
SO Bopuxue Zazhi (1985), 2(2), 97-103  
AB A type of submillimeter wave Fourier transform spectrometer is presented with working wavelength in the region of 33-500  $\mu$ m. The resoln. is 1 cm<sup>-1</sup>. A microcomputer is used for the data acquisition and processing. The moving mirror is driven by a liq.-pressure machine for smooth moving. The displacement of the moving mirror is measured with a laser interferometer. The optical path system is evacuated to prevent adsorption of water vapor.

=> log y  
STN INTERNATIONAL LOGOFF AT 10:27:28 ON 04 AUG 2008

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(FILE 'HOME' ENTERED AT 09:41:42 ON 04 AUG 2008)  
FILE 'CA' ENTERED AT 09:41:50 ON 04 AUG 2008  
L1 1274 S (SUBMILIMETER OR TERAHERTZ OR SUB MILIMETER OR TERA HERZ) (4A)  
(SPECTRO? OR ABSOR?)  
L2 2 S L1 AND (VACUUM OR REDUC?(1A)PRESSUR? OR EVACUAT?)  
L3 1 S L1 AND CHROMATOG?  
L4 19 S L1 AND SAMPLE(2A) PREPAR?  
L5 21 S L2-4  
L6 112 S L1 AND(GAS? OR VAPOR? OR VOLATIL? OR SEMIVOLATIL?)  
L7 111 S L6 NOT L5  
L8 18 S L7 AND(TRAP? OR LEAK? OR INTERFAC? OR CARRIER OR CONTAMIN? OR  
IMPUR? OR PRECONCEN? OR PRE CONCEN?)

=> d bib,ab 15 1-21

L5 ANSWER 19 OF 21 CA COPYRIGHT 2008 ACS on STN  
AN 140:299742 CA  
TI Terahertz Time-Domain Spectroscopy of Glucose and Uric Acid  
AU Upadhyea, P. C.; Shen, Y. C.; Davies, A. G.; Linfield, E. H.  
CS Cavendish Laboratory, University of Cambridge, Cambridge, CB3 0HE, UK

SO Journal of Biological Physics (2003), 29(2-3), 117-121  
AB We report the use of terahertz time-domain spectroscopy for the study of two therapeutic bio-mols.: glucose and uric acid. Terahertz transmission spectra of cryst. samples of both mols. were measured between 0.1-3.0 THz using an evacuated spectroscopy system. We propose that the stereo-isomers of glucose show spectral features originating from intermol. vibrational modes, as do uric acid and its deriv. mol., allantoin. In addn., we present a full temp. dependence of the terahertz absorption of L-glucose.

=> d bib,ab 18 1-18

L8 ANSWER 17 OF 18 CA COPYRIGHT 2008 ACS on STN

AN 134:22887 CA

TI Low-energy charge dynamics in La<sub>0.7</sub>Ca<sub>0.3</sub>MnO<sub>3</sub>: THz time-domain spectroscopic studies

AU Kida, N.; Hangyo, M.; Tonouchi, M.

CS Research Center for Superconductor Photonics, Osaka University, Suita, Osaka, 565-0871, Japan

SO Physical Review B: Condensed Matter and Materials Physics (2000), 62 (18), R11965-R11968

AB Direct exptl. estns. of the low-energy (1.5-10 meV) complex dielec. consts. spectrum and its temp. variation have been investigated for La<sub>0.7</sub>Ca<sub>0.3</sub>MnO<sub>3</sub> thin films using terahertz time-domain spectroscopy. At low temps., a clear Drude term emerges. With increasing temp., the scattering rate increases, while the plasma frequency decreases, both derived from a simple Drude model. Finally, a Drude term submerges well below the insulator-metal transition temp. On the basis of the present results, low-energy charge dynamics are discussed.

=> log y

STN INTERNATIONAL LOGOFF AT 09:53:03 ON 04 AUG 2008